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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,615	10/24/2003	Do Hoon Kim	P-0605	7210

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CHANTILLY, VA 20153

EXAMINER

JACKSON, BLANE J

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/691,615

Applicant(s)

KIM, DO HOON

Examiner

Blane J. Jackson

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 10 August 2006 has been received and placed of record in the file.

Response to Arguments

Applicant's arguments filed 27 September 2006 have been fully considered but they are not persuasive. With respect to secondary prior art, Wilson teaches means to store a block of audio data, all values received, absolute values or otherwise, where a peak height detector performs a *window scanning routine in memory* to find and record the first peak envelope to go over a predetermined upper limit as well as the location and size of the highest peak in the window where these values are used to determine what adjustment should be made to the gain, column 6, lines 52-65. This ability of Wilson is an obvious additional step to the data sample and peak-hold function of Kopmeiners. This opinion is repeated and edited for clarity in the rejection to follow.

Claim Objections

Claim 1 is objected to because of the following informalities: the amended claim language reads "abstracting" where —extracting—is expected. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kopmeiners et al. (US 5,917,865) in view of Wilson (US 5,471,651).

As to claims 1 and 5, Kopmeiners teaches an automatic gain control apparatus and method of a radio frequency communication system comprising:

Extracting a maximum absolute value of a reception signal received by a receiver of a radio frequency communication system (figure 1, column 4, lines 1-47, RF receiver (100) comprising a peak detector (132) detects the peak signal level during a sampling interval using a peak hold function),

Determining a gain control value of the reception signal on the basis of the maximum absolute value and a predetermined threshold (column 5, line 1 to column 6, line 9, processor (135) examines the output of the peak-hold function and compares the value to the dynamic range, an output value between an upper and lower limit, of the ADC (120) then compares the sampled signal peak level with a predetermined optimum target peak level to determine an adjustment of the gain control signal of VGA (110)), and

Controlling gain of the reception signal according to the determined gain control value (column 6, lines 10-23, processor (135) calculates a gain adjustment based on the sampled signal peak level and the target peak level).

Kopmeiners teaches a gain control method that extracts a maximum absolute value of a reception signal but does not teach storing absolute values of the reception signal and extracting the maximum absolute value among the stored absolute values.

Wilson teaches a wireless transceiver comprising a digital signal processor to implement an audio automatic gain control system (AGC) comprising store (10) to store a block of all received data, a peak height detector (14) to perform a window scan of the stored signal data to find the first peak envelope to exceed a predetermined upper limit and record the location of this first value and the location and size of the highest peak in the window and this information is processed by ideal gain calculator (20) to compute what adjustment should be made to the signal gain adjuster (6), figure 3, column 6, line 30 to column 7, line 16.

Despite Wilson teaching an AGC adapted at the audio portion of a wireless transceiver, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the peak and hold function during the sampling period of Kopmeiners with the sample, store and peak detect approach of Wilson to ensure that by the time the first peak to go over the predetermined upper limit arrives at the output, the gain has been adjusted to bring the highest peak in the window under the predetermined limit.

As to claims 3 and 8 with respect to claims 1 and 5, Kopmeiners teaches wherein controlling the gain comprises:

Amplifying the reception signal by multiplying the reception signal by the determined gain control value and outputting the amplified reception signal (figure 1, column 4, lines 1-30, an AGC circuit (130) provides control of the VGA (110) to amplify the signal to be compatible to the input of ADC (120)).

As to claims 4 and 9 with respect to claims 1 and 5, Kopmeiners teaches the gain control value is for amplifying the reception signal to make the extracted maximum absolute value consist with the predetermined threshold and the predetermined threshold is a maximum value of a predetermined reception signal (figure 1, column 5, line 64 to column 6, line 9, analyzer (134) compares the sampled signal peak level with an optimum predetermined target peak level to determine the adjustment of the gain control signal of VGA (110)).

As to claim 10, Kopmeiners teaches an automatic gain control apparatus of a radio frequency communication system comprising:

An amplitude controller for calculating absolute values of a reception signal received by a receiver of a radio frequency communication system (figure 1, column 4, lines 1-60, peak detector (132) detects the peak signal level during a sampling interval using a peak hold function),

A controller for extracting a maximum absolute value among the absolute values *presented in an interval* and determining a gain control value of the reception signal by comparing the extracted maximum absolute value with a predetermined threshold (column 5, line 1 to column 6, line 9, processor (135) examines the output of the peak-hold function and compares the value to the dynamic range, an output value between an upper and lower limit, of the ADC (120) then compares the sampled signal peak level with a predetermined optimum target peak level to determine an adjustment of the gain control signal of VGA (110)), and

A multiplier for amplifying the reception signal by multiplying the reception signal by the determined gain control value and outputting the amplified reception signal (figure 1, column 4, lines 10-18, VGA (110)).

Kopmeiners teaches a gain control method that extracts a maximum absolute value of a reception signal but does not teach extracting a maximum absolute value among absolute values stored in a buffer.

Wilson teaches a wireless transceiver comprising a digital signal processor to implement an audio automatic gain control system (AGC) comprising store (10) to store a block of all received data, a peak height detector (14) to perform a window scan of the stored signal data to find the first peak envelope to exceed a predetermined upper limit and record the location of this first value and the location and size of the highest peak in the window and this information is processed by ideal gain calculator (20) to compute what adjustment should be made to the signal gain adjuster (6), figure 3, column 6, line 30 to column 7, line 16.

Despite Wilson teaching an AGC adapted at the audio portion of a wireless transceiver, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the peak and hold function during the sampling period of Kopmeiners with the sample, store and peak detect approach of Wilson to ensure that by the time the first peak to go over the predetermined upper limit arrives at the output, the gain has been adjusted to bring the highest peak in the window under the predetermined limit.

As to claim 11, Wilson of Kopmeiners modified teaches the apparatus of claim 10 wherein the buffer is a first in first out storage (column 6, lines 40-41, "as each block is read in, the existing blocks are shuffled through the store with some being lost at its end" where the store (10) in this context is understood to mean a serial FIFO memory device).

As to claim 12, Kopmeiners teaches the apparatus of claim 10 wherein the gain control value amplifies the reception signal to make the extracted maximum absolute value consist with the predetermined threshold and the predetermined threshold is a maximum value of a predetermined reception signal (figure 1, column 5, line 64 to column 6, line 9, analyzer (134) compares the sampled signal peak level with an optimum predetermined target peak level to determine the adjustment of the gain control signal of VGA (110)).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J. Jackson whose telephone number is (571) 272-7890. The examiner can normally be reached on Monday through Friday, 8:30 AM-6:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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